

Claims

1. An endoscopic band ligator comprising:
an inner sleeve mountable over an endoscope shaft;
a middle sleeve longitudinal slidable relative to the inner sleeve and carrying at least one ligating band about its outer surface;
an outer sleeve slidable relative to the middle and inner sleeves and having projecting fingers to engage in discharging a ligating band from the middle sleeve.
2. An endoscopic band ligator as defined in claim 1 wherein the middle sleeve further comprises at least one angle circumferential ridge formed on an exterior surface of the sleeve in which the at least one band can be seated.
3. An endoscopic band ligator as defined in claim 2 wherein the middle sleeve further comprises at least one longitudinal channel traversing the at least one circumferential ridge in which the projecting finger of the outer sleeve may slide.
4. An endoscopic band ligator comprising:
a distal portion mountable on a distal end of an endoscope;
a control wire sheath extending proximally from the distal portion and configured to be placed externally of an endoscope about which the distal portion is mounted; and
a control handle at a proximal end of the control wire sheath configured to be slidably mounted on the exterior of an endoscope shaft.
5. An endoscopic band ligator as defined in claim 4 wherein the control handle further comprises operator controls for actuating the band ligator distal portion.

6. An endoscopic band ligator as defined in claim 5 wherein the operator controls have distinct ranges of motion to indicate to the user corresponding action at the band ligator distal portion.

7. An endoscopic band ligator as defined in claim 6 where in the operator controls are in connection with force limiter that modulates the user's input forces to maintain acceptable non-destructive forces applied to the band ligator components.

8. An endoscopic band ligator as defined in claim 7 where in the force limiter comprises a flexible arch that deflects under operational forces and releases engagement with the between the operator controls and the ligator components at a predetermined force level.

9. An endoscopic band ligator as defined in claim 4 wherein the distal portion further comprises inner, middle and outer coaxial sleeves longitudinally slidable relative to each other and a first operator control on the control handle is operable to move the middle and outer sleeves relative to the inner sleeve and a second operator control of a control handle operates to move the outer sleeve relative to the middle sleeve to discharge a ligating band.

10. A method of endoscopically applying ligating bands comprising:
providing an endoscopic band ligator mounted on the distal end of an endoscope and being operated by a control handle slidably mounted on the endoscope shaft,
navigating the ligator to an internal treatment site,
operating a first user control on the control handle to extend a vacuum chamber on the ligator,
introducing vacuum to the vacuum chamber to aspirate a section of tissue,
manipulating a second user control to release a band onto the captured tissue.